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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/604,496  | 07/25/2003  | Paul E. Miller       | 71368-0058          | 1495             |
| 20915   | 7590        | 09/22/2004           | EXAMINER            |                  |
| MCGARRY BAIR PC<br>171 MONROE AVENUE, N.W.<br>SUITE 600<br>GRAND RAPIDS, MI 49503 |             |                      | A, MINH D           |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2821                |                  |

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/604,496

Applicant(s)

MILLER ET AL.

Examiner

Minh D A

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 10 and 20-25 is/are rejected.
- 7) ☒ Claim(s) 2-9 and 11-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/27/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 10, 20, 21-23 are rejected under 35 U.S.C. 102(b) as being unpatentable by Miller et al (US 5,402,134).

Regarding claim 1, Miller discloses a flat antenna module under a dielectric cover of a vehicle, comprising: a first loop (125) having first and second conductor sections (127) of substantially equal length, and a capacitor (126), each conductor section (127) having one end with an antenna feed line connector (132) and the other end (134) connected to one side of the capacitor (126), wherein the length of the first and second conductor sections (127) is sufficient to resonate in the FM frequency range and wherein the capacitor (126) has a predetermined value of capacitance to block frequencies in the AM range, and a probe, coplanar with the first loop (125), connected to the first section (127), and having sufficient length to effectively enhance AM reception from the first and second conductor sections (127). See figures 1-5, col.3, lines 37-68 to col.4, lines 1-55.

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Regarding claim 10, Miller discloses the probe is connected to the first conductor section (16) near the antenna feed line connector (132 or 134). See figure 2.

Regarding claim 20, Miller discloses an antenna module comprising: a planar dielectric substrate (110)', a first loop (125) mounted to the substrate (110) and having first and second conductor sections (127) of substantially equal length, and a capacitor (126), each conductor section (127) having one end with an antenna feed line connector (132) and the other end connected (134) to one side of the capacitor (126), wherein the length of the first and second conductor sections (127) is sufficient to resonate in the FM frequency range and wherein the capacitor (126) has a predetermined value of capacitance to block frequencies in the AM range and a probe, mounted to the substrate substantially coplanar with the first loop (125), connected to the first conductor section, and having sufficient length to effectively enhance AM reception from the first and second conductor sections. See figures 1-5, col.3, lines 37-68 to col.4, lines 1-55.

Regarding claim 21, Miller discloses an antenna module comprising; a planar dielectric substrate (110)', a first probe (117) mounted to the substrate (110)', a second probe (118) mounted to the substrate normal to and shorter than the first probe (117); and a coiled probe (116) mounted to the substrate coplanar with the first and second probes, and within the angle formed between the first and second probes, wherein the first and second probes and the coiled probe are each connected to a single feed point and the coiled probe comprises multiple

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turns, no turn extending beyond the length of either the first or second probes.

See figures 1-5, col.3, lines 37-68 to col.4, lines 1-55.

Regarding claim 22, Miller discloses wherein each turn of the coiled probe and the first and second probes are equidistantly spaced from another of the turns of the second probes, coiled probe or the first and second probes. See figures 2-4.

Regarding claim 23, Miller inherently discloses a ground lead connected to the feed point, because a ground lead is connected to substrate print circuit, therefore, it should have a connect point or feed point. See figure 2.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Miller et al (US 5,402,134).

Regarding claims 24-25, Miller discloses the claimed invention except for WB frequency range and the length of each of the probes and coil probe is less than one quarter-wavelength. It would have been an obvious matter of design choice to employ a WB frequency range and the length of each of the probes and coil probe is less than one quarter-wavelength in the module antenna of Miller, since such a modification would have involved a mere change in the size of a

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component. A change in size is generally recognized as being within the level of ordinary skill in the art.

3. Claims 2-9, 11-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not teach that, L-C circuit between the probe and the first section recited in dependent claims 2 and 11.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Edvardsson et al (US 6,204,817) and Wang et al. (US 5,508,710) are cited to show a radio communication device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Minh A whose telephone number is (571) 272-1817. The examiner can normally be reached on M-F (5:30 –2:30 PM).

If attempts to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Don Wong, can be reached on (571) 272-1834. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and (703) 872-9319 for final communications.

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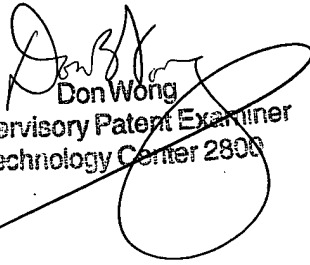
Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (571) 272-1553.

Examiner

Minh A

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9/08/04

  
Don Wong  
Supervisory Patent Examiner  
Technology Center 2800